Trend Study 10-1-00

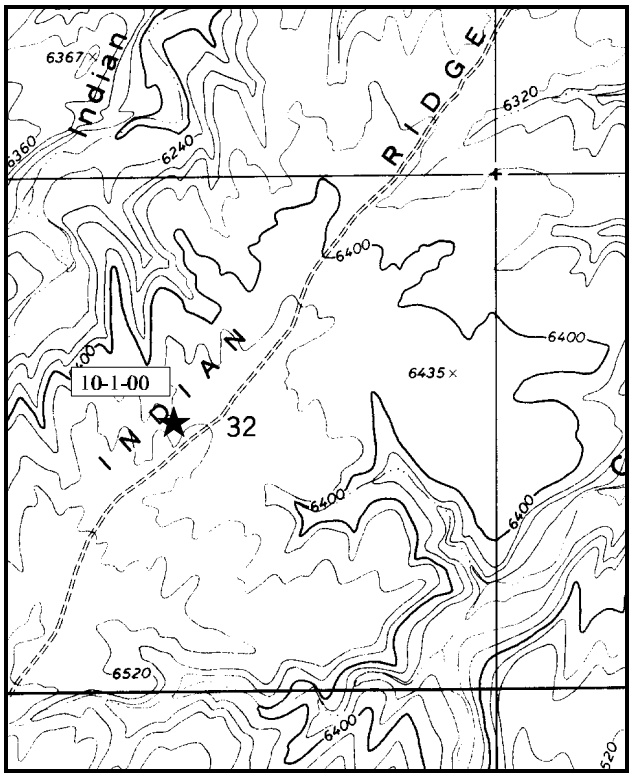
Study site name: Indian Ridge . Range type: Desert Shrub .

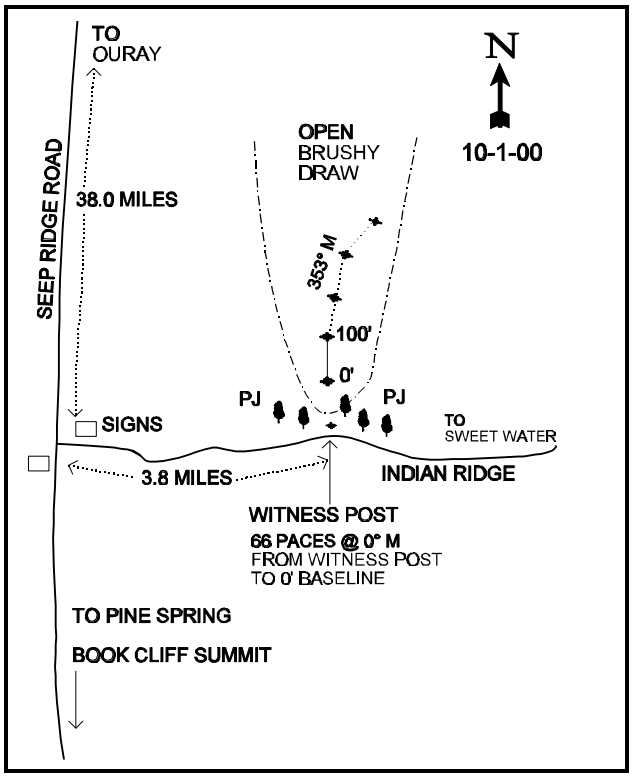
Compass bearing: frequency baseline 357 °M .

First frame placement on frequency belts 5 feet. Frequency belt placement; line 1 (11 & 95ft), line 2 (34ft), line 3 (59ft), line 4 (71ft).

LOCATION DESCRIPTION

From Ouray, go 38 miles south to the McCook Ridge-Indian Ridge turnoff. Turn left (east) and travel on the Indian Ridge road towards Sweetwater Canyon and McCook Ridge for 3.8 miles. Stop by the head of a small sagebrush-saltbrush draw, marked by a 20 inch tall fencepost on the left. Walk down the draw 60 paces to the 0-foot baseline stake. The frequency baseline is marked by red steel fenceposts, 12 to 18 inches in height. The 0-foot baseline stake is marked by a red browse tag.





Map Name: Cooper Canyon . Diagrammatic Sketch

Township 13S , Range 23E , Section 32 UTM. 4389176.354 N, 639914.273 E

DISCUSSION

Trend Study No. 10-1 (16A-1)

The Indian Ridge study is located in a shallow draw on the north side of Indian Ridge. The area is principally deer winter range. The site has an elevation of 6,450 feet, a northern aspect and a slope of 5-6%. The range type is salt desert shrub dominated by fourwing saltbush, winterfat, and black sagebrush. The large fourwing saltbush are scattered throughout the draw. Cheatgrass brome is the principal understory species with lesser amounts of sand dropseed, blue grama, and thickspike wheatgrass. The low ridges surrounding the study site are dominated by juniper and pinyon woodland. There is some cattle use between winter and spring on a rotational deferment grazing system. Pellet transect data from 2000 estimate 23 cow days use/acre (57 cdu/ha), 27 deer days use/acre (67 ddu/ha), and 28 elk days use/acre (69 edu/ha).

Soils are alluvially deposited from limestone parent material and are moderately deep with an estimated effective rooting depth of nearly 23 inches. Soil depth progressively becomes more shallow toward the ridgetops. Soils have a loam texture and a slightly alkaline soil reaction (7.8 pH). Average soil temperature is 58°F at just over 18 inches in depth. A profile stoniness index estimated from penetrometer readings shows rockiness in the profile to be quite uniform down to 20-25 inches below the surface. There are dense pockets of soil in the shrub interspaces. Erosion is generally outweighed by soil sedimentation coming from the surrounding woodland slopes. Protective ground cover is adequate to limit erosion due to the abundance of thickspike wheatgrass and cheatgrass. Phosphorus is low at 2.4 ppm where 10 ppm has been shown to be necessary for normal plant growth and development.

The key browse species at this site are fourwing saltbush, winterfat, and black sagebrush. Currently (‘00), fourwing saltbush is moderately large with an average height of 33 and a crown diameter of 44 inches. This species provides the majority of the browse cover at this site, 53% in 1995 and 58% in 2000. Currently, two-thirds of the population consists of mature plants that show mostly light use and good vigor. Young age class recruitment was extremely high in 1995 at 57%, and is currently (‘00) moderately high at 19%. Percent decadency increased from 3% in 1995 to 15% in 2000. The extended drought, especially the dry fall and spring of 1999-2000, is a primary factor in the increased decadency and decreased recruitment of fourwing saltbush.

Winterfat, though more numerous, is low growing and provides only 21% and 14% of the browse cover in 1995 and 2000 respectively. During severe winters, winterfat would be covered by snow and largely unavailable. Winterfat was fairly stable in density from 1982 (7,133 plants/acre) to 1995 (6,240 plants/acre), but decreased substantially in 2000 to an estimated 3,980 plants/acre. Mature individuals are small, currently (‘00) averaging less than a foot in height. Use was mostly light in 1995, increasing to mostly moderate in 2000. Winterfat displayed excellent leader growth in 2000 with leaders averaging nearly 5 inches in length. Utilization is difficult to determine on these shrubs due to abundant annual leader growth. Currently, winterfat displays low decadency and good vigor, but has a low biotic potential (# of seedlings) and young recruitment.

Black sagebrush was not picked up in the sample used in 1982 and 1988, but with the larger sample size used after 1991, a population of 960 plants/acre was estimated in 1995, decreasing slightly to 820 plants/acre in 2000. Black sagebrush consists mostly of mature and decadent plants with low recruitment from young plants. Percent decadency increased from 19% to 34% between the 1995 and 2000 samples, with the percentage of plants displaying poor vigor increasing from 0% to 22% during this same period. Increased decadency and a higher proportion of plants displaying poor vigor can be attributed in part to the extended drought.

Fringed sagebrush, a "sub" shrub, was moderately abundant in 1995, estimated at 6,000 plants/acre. However, with the drought, this species nearly disappeared in 2000 with the current population estimate at only 420 plants/acre. This low-growing species does not appear to be utilized, yet it can provide good winter forage for

big game when snows are not too deep. Other browse species encountered on the site include basin big sagebrush and broom snakeweed.

Perennial grasses are not abundant and have shown decreases in nested and quadrat frequencies since 1988. Composition is limited to seven species with sand dropseed, western wheatgrass and blue grama being the most numerous. Sand dropseed significantly decreased in nested frequency in 2000, while western wheatgrass significantly increased. The most abundant grass by far is the annual cheatgrass brome. Photos from 1982, 1988, and 1995 indicated that cheatgrass had steadily increased in abundance and stature. Due to the unusually wet spring in 1995, cheatgrass was knee high and very vigorous. However, due to drought in 2000, cheatgrass decreased in nested and quadrat frequencies as well as height in 2000. During the 1995 reading, cheatgrass had an average cover value of 52%, which accounted for 91% of all herbaceous cover and 73% of the total vegetative cover. In 2000, average cover of cheatgrass declined to 22% which accounted for 73% of the total herbaceous cover and 51% of the total vegetative cover. Even with a decrease in frequency and average cover, cheatgrass still presents a serious fire hazard at this site.

Forb composition is depleted. Perennial species are few with no more than four species being sampled in any year. Scarlet globemallow is the most commonly occurring perennial, but decreased in 2000 due to drought.

1982 APPARENT TREND ASSESSMENT

Soil trend appears stable but is influenced strongly by the surrounding pinyon- juniper type. Concurrent sedimentation and erosion result in a nearly continuous turnover or soil disturbance, which allows an abundant growth of annuals and inhibits, to a degree, perennial establishment. Vegetative trend may be slightly improving. The shrub stand, especially fringed sagebrush and winterfat, appear to be thickening. Management should strive towards encouraging the expansion of fourwing saltbush and other shrubs that can provide needed forage diversity.

1988 TREND ASSESSMENT

The reread of this 1982 range trend study demonstrated that very little change has occurred in this desert shrub type. The density and age structure of the key browse species, winterfat and fourwing saltbush, are basically unchanged. These browse species are very vigorous, with abundant seed heads and new growth. In 1988, 28% of the mature winterfat had a moderate to heavily hedged growth form, but the majority are still lightly used. There was a significant decrease in the number of fringed sagebrush encountered. Trend for the herbaceous understory is up but still in poor condition. Quadrat frequency for western wheatgrass and sand dropseed increased although perennial grasses are lacking on the site. Forb frequency is very low and slightly down since 1982. The soil trend is improved due to a decline in bare ground combined with an increase in litter and basal vegetative cover.

TREND ASSESSMENT
soil - slightly up (4)
browse - stable (3)
herbaceous understory - improved but in poor condition (4)

1995 TREND ASSESSMENT

The soil trend appears stable. Erosion is minimal, mainly due to the dense cover of cheatgrass. Trend for browse has improved since the last reading. Fourwing saltbush densities have increased, while winterfat has slightly decreased due to a decline in number of young plants (3,266 to 500 plants/acre). The majority of the fourwing are young plants which make up 57% of the total population. Due to the large amounts of current

annual growth on winterfat and fourwing, percent utilization was difficult to determine this season. Use appears light for fourwing and winterfat. The dominant vegetation on the site is cheatgrass which is very vigorous this year due to the unusually wet spring. Cheatgrass has a sum of nested frequency of 373 out of a possible 400 and a quadrat frequency of 97%. The plants are 20 to 30 inches height and cover 52% of the ground surface. Perennial grasses consisting of sand dropseed, mutton bluegrass, and blue grama are present under the cheatgrass canopy while western wheatgrass occurs in small scattered patches. Sum of nested frequency for perennial grasses has declined since 1988 indicating a downward trend. Forbs are uncommon on the site and consist of mostly annuals. Scarlet globemallow is the only common perennial forb.

TREND ASSESSMENT
soil - stable (3)
browse - up, especially for fourwing saltbush (5)
herbaceous understory - down and in poor condition due to the over abundance of cheatgrass and lack of perennial grasses (1)

2000 TREND ASSESSMENT

Trend for soil appears stable. There is adequate ground cover from grasses and litter to minimize erosion. The ratio of bare soil to protective ground cover (vegetation, litter, and cryptogams) is almost unchanged since the last reading. Trend for browse is slightly down. The key species, fourwing saltbush, winterfat, and black sagebrush show declines in density and increases in decadency. Also, the proportion of decadent plants classified as dying is high for all of the key species. Biotic potential (proportion of seedlings to the population) is low for all the key species, with recruitment (proportion of young plants in the population) being low for black sagebrush and winterfat, and moderate for fourwing saltbush. The proportion of plants displaying poor vigor increased for fourwing saltbush and black sagebrush. Increased poor vigor, decreases in density and increases in decadency for browse can be attributed in many ways to drought. Also, dry conditions make it difficult for seedling and young plants to become established and persist. Trend for the herbaceous understory is down with sum of nested frequency for perennial grasses and forbs decreasing by nearly 25% in 2000. This decrease is mostly due to drought, and the downward trend could improve with a return to normal precipitation.

TREND ASSESSMENT
soil - stable (3)
browse - slightly down (2)
herbaceous understory - down due to drought (1)

HERBACEOUS TRENDS --
Herd unit 10 , Study no: 1

Type	Species	Nested Frequency			Quadrat Frequency				Average Cover %	
		'88	'95	'00	'82	'88	'95	'00	'95	'00
G	Agropyron dasystachyum	$_{b}$75	$_{a}$38	$_{b}$77	4	25	14	21	1.29	6.28
G	Bouteloua gracilis	$_{a}$8	$_{b}$26	$_{ab}$25	-	4	11	11	1.01	.76
G	Bromus tectorum (a)	-	$_{b}$379	$_{a}$302	-	-	97	84	51.80	22.05
G	Oryzopsis hymenoides	$_{a}$-	$_{b}$10	$_{b}$4	-	-	4	3	.09	.04
G	Poa fendleriana	9	16	14	-	3	8	8	.21	.07
G	Sitanion hystrix	$_{a}$-	$_{b}$10	$_{b}$7	-	-	5	4	.10	.19
G	Sporobolus cryptandrus	$_{c}$161	$_{b}$94	$_{a}$37	48	61	37	17	1.04	.66
G	Stipa comata	-	1	-	-	-	1	-	.00	-
Total for Annual Grasses		0	379	302	0	0	97	84	51.80	22.05
Total for Perennial Grasses		253	195	164	52	93	80	64	3.76	8.03
Total for Grasses		253	574	466	52	93	177	148	55.57	30.08
F	Astragalus spp.	-	1	-	-	-	1	-	.00	-
F	Astragalus convallarius	-	-	-	2	-	-	-	-	-
F	Descurainia pinnata (a)	-	4	-	13	-	2	-	.01	-
F	Draba spp. (a)	-	3	-	-	-	1	-	.00	-
F	Lappula occidentalis (a)	-	$_{b}$57	$_{a}$5	-	-	23	3	.48	.07
F	Schoencrambe linifolia	-	6	1	-	-	3	1	.04	.00
F	Sphaeralcea coccinea	$_{a}$20	$_{b}$48	$_{a}$19	4	9	19	8	.58	.23
F	Tragopogon dubius	5	-	5	-	2	-	4	-	.07
F	Trifolium dubium	6	-	-	-	5	-	-	-	-
F	Unknown forb-perennial	1	-	-	-	1	-	-	-	-
Total for Annual Forbs		0	64	5	13	0	26	3	0.50	0.07
Total for Perennial Forbs		32	55	25	6	17	23	13	0.62	0.31
Total for Forbs		32	119	30	19	17	49	16	1.12	0.37

Values with different subscript letters are significantly different at % = 0.10 (annuals excluded)

BROWSE TRENDS --
Herd unit 10 , Study no: 1

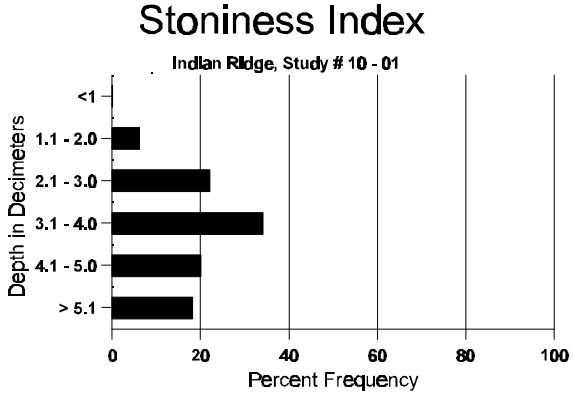
Type	Species	Strip Frequency '95	Strip Frequency '00	Average Cover % '95	Average Cover % '00
B	Artemisia frigida	75	9	1.36	.09
B	Artemisia nova	11	9	2.27	2.53
B	Artemisia tridentata tridentata	1	1	.01	-
B	Atriplex canescens	56	51	7.87	7.57
B	Ceratoides lanata	86	73	3.09	1.86
B	Gutierrezia sarothrae	10	15	.12	1.01
B	Pinus edulis	0	1	-	.00
Total for Browse		239	159	14.73	13.08

BASIC COVER --
Herd unit 10 , Study no: 1

Cover Type	Nested Frequency '95	Nested Frequency '00	Average Cover % '82	Average Cover % '88	Average Cover % '95	Average Cover % '00
Vegetation	389	365	2.30	8.75	65.86	46.86
Rock	132	34	1.30	.50	1.08	.32
Pavement	196	115	13.50	4.75	3.41	3.65
Litter	397	380	73.00	79.50	62.46	60.58
Cryptogams	9	31	0	0	.39	1.19
Bare Ground	226	220	10.00	6.50	8.80	12.56

SOIL ANALYSIS DATA --
Herd Unit 10, Study # 1, Study Name: Indian Ridge

Effective rooting depth (inches)	Temp °F (depth)	pH	%sand	%silt	%clay	%0M	PPM P	PPM K	dS/m
22.80	58.4 (18.11)	7.8	36.0	38.0	26.0	1.7	2.4	275.2	0.6



PELLET GROUP FREQUENCY --
Herd unit 10 , Study no: 1

Type	Quadrat Frequency '95	Quadrat Frequency '00	Pellet Transect: Pellet Groups per Acre ⁄00	Pellet Transect: Days Use per Acre (ha) ⁄00
Horse	0	0	9	N/A
Rabbit	6	21	827	N/A
Elk	2	11	365	28 (70)
Deer	9	6	357	27 (68)
Cattle	6	3	270	23 (56)

BROWSE CHARACTERISTICS --
Herd unit 10 , Study no: 1

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Artemisia frigida																		
S	82	11	-	-	-	-	-	-	-	-	11	-	-	-	733			11
	88	3	-	-	-	-	-	1	-	-	4	-	-	-	266			4
	95	26	-	-	-	-	-	-	-	-	26	-	-	-	520			26
	00	8	-	-	-	-	-	-	-	-	8	-	-	-	160			8
Y	82	19	-	-	-	-	-	-	-	-	19	-	-	-	1266			19
	88	1	-	-	-	-	-	1	-	-	2	-	-	-	133			2
	95	47	-	-	-	-	-	-	-	-	47	-	-	-	940			47
	00	1	2	-	-	-	-	1	-	-	4	-	-	-	80			4
M	82	38	-	-	-	-	-	-	-	-	38	-	-	-	2533	9	9	38
	88	1	-	-	1	-	-	-	-	-	2	-	-	-	133	13	5	2
	95	253	-	-	-	-	-	-	-	-	253	-	-	-	5060	14	7	253
	00	10	5	1	-	-	-	1	-	-	17	-	-	-	340	4	5	17

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'82	00%	00%	00%	-93%
'88	00%	00%	00%	+96%
'95	00%	00%	00%	-93%
'00	33%	05%	00%	

Total Plants/Acre (excluding Dead & Seedlings)			Dec:
	'82	3799	-
	'88	266	-
	'95	6000	-
	'00	420	-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Artemisia nova																		
S	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	4	-	-	-	-	-	-	-	-	4	-	-	-	80			4
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	6	-	-	-	-	-	-	-	-	6	-	-	-	120			6
	00	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
M	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	95	2	13	18	-	-	-	-	-	-	33	-	-	-	660	9	17	33
	00	19	6	-	-	-	-	-	-	-	25	-	-	-	500	10	23	25
D	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	2	7	-	-	-	-	-	-	9	-	-	-	180			9
	00	7	-	-	-	-	-	7	-	-	5	-	-	9	280			14
X	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'82	00%	00%	00%	
'88	00%	00%	00%	
'95	31%	52%	00%	-15%
'00	15%	00%	22%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'82	0	Dec:	0%
	'88	0		0%
	'95	960		19%
	'00	820		34%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Artemisia tridentata tridentata																		
S	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
M	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0	41	69	0
	00	-	-	-	-	-	1	-	-	-	1	-	-	-	20	15	16	1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'82	00%	00%	00%	
'88	00%	00%	00%	
'95	00%	00%	00%	-50%
'00	00%	100%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'82	0	Dec:	-
	'88	0		-
	'95	40		-
	'00	20		-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Atriplex canescens																		
S	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	16	-	-	-	-	-	-	-	-	16	-	-	-	320			16
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	-	-	-	-	-	1	-	-	1	-	-	-	66			1
	95	62	-	-	-	-	-	-	-	-	62	-	-	-	1240			62
	00	11	6	-	-	-	-	-	-	-	17	-	-	-	340			17
M	82	3	3	-	-	-	-	-	-	-	5	1	-	-	400	30	31	6
	88	8	-	-	-	-	-	-	-	-	8	-	-	-	533	49	70	8
	95	44	-	-	-	-	-	-	-	-	44	-	-	-	880	38	46	44
	00	48	4	-	7	-	-	-	-	-	59	-	-	-	1180	33	44	59
D	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	2	1	-	-	-	-	-	-	-	3	-	-	-	60			3
	00	7	1	1	1	1	-	2	-	-	6	-	-	7	260			13
X	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	60			3

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'82	50%	00%	00%	+33%
'88	00%	00%	00%	+73%
'95	.91%	00%	00%	-18%
'00	13%	01%	08%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'82	400	Dec:	0%
	'88	599		0%
	'95	2180		3%
	'00	1780		15%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Ceratoides lanata																		
S	82	6	-	-	-	-	-	-	-	-	6	-	-	-	400			6
	88	1	-	-	-	-	-	-	-	-	1	-	-	-	66			1
	95	5	-	-	-	-	-	-	-	-	5	-	-	-	100			5
	00	6	-	-	-	-	-	-	-	-	6	-	-	-	120			6
Y	82	18	-	-	-	-	-	-	-	-	28	-	-	-	1200			18
	88	27	12	4	2	-	-	4	-	-	49	-	-	-	3266			49
	95	25	-	-	-	-	-	-	-	-	25	-	-	-	500			25
	00	7	3	-	-	-	-	-	-	-	10	-	-	-	200			10
M	82	87	2	-	-	-	-	-	-	-	89	-	-	-	5933	12	9	89
	88	44	15	4	4	-	-	2	-	-	69	-	-	-	4600	15	10	69
	95	285	-	-	-	-	-	-	-	-	282	-	-	3	5700	13	9	285
	00	52	116	3	6	-	-	4	-	-	180	-	-	1	3620	10	11	181
D	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	1	-	-	-	-	-	-	-	1	-	-	-	66			1
	95	1	1	-	-	-	-	-	-	-	1	-	-	1	40			2
	00	-	4	2	-	1	1	-	-	-	3	-	-	5	160			8
X	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	60			3

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'82	02%	00%	00%	+10%
'88	24%	07%	00%	-21%
'95	.32%	00%	01%	-36%
'00	62%	03%	03%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'82	7133	Dec:	0%
	'88	7932		1%
	'95	6240		1%
	'00	3980		4%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Gutierrezia sarothrae																		
S	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	3	-	-	-	-	-	-	-	-	3	-	-	-	60			3
	00	3	-	-	-	-	-	-	-	-	3	-	-	-	60			3
M	82	1	-	-	-	-	-	-	-	-	1	-	-	-	66	7	11	1
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	95	16	-	-	-	-	-	-	-	-	16	-	-	-	320	10	6	16
	00	60	-	-	-	-	-	1	-	-	58	-	3	-	1220	6	8	61
D	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	4	-	-	3	-	-	1	-	-	-	-	2	6	160			8
X	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	40			2

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'82	00%	00%	00%	
'88	00%	00%	00%	
'95	00%	00%	00%	+74%
'00	00%	00%	15%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'82	66	Dec:	0%
	'88	0		0%
	'95	380		0%
	'00	1440		11%

Pinus edulis

S	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'82	00%	00%	00%	
'88	00%	00%	00%	
'95	00%	00%	00%	
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'82	0	Dec:	-
	'88	0		-
	'95	0		-
	'00	20		-